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IN THE CLAIMS:

This listing of claims replaces all previous listing of claims.

1. (Currently Amended) A radiation polarizer for maximizing a transmission of a first polarization state while minimizing a reflection of the first polarization state, and for minimizing a transmission for an orthogonal second polarization state while maximizing a reflection of the second polarization state, said polarizer comprising:

a substrate;

at least one anti-reflection coating layer communicatively coupled to said substrate; and

at least two nanostructures communicatively coupled to said at least one anti-reflection coating layer thereby forming a layer of nanostructures;

said at least two nanostructures each including a metallic and dielectric combination, said metallic and dielectric of said combination being located adjacent each other, said metallic having a short surface and a long surface, said dielectric extending only partially along said long surface of said metallic;

~~at least two groove layers, wherein each one of said at least two groove layers is interstitial to a respective one of said at least two nanostructures; and,~~

~~at least one dielectric substantially between said substrate and said at least two groove layers, said at least one dielectric having a refractive index greater than one,~~

wherein ~~a communicative coupling between each one of said groove layers and the respective one of said nanostructures~~ said nanostructure layer polarizes the radiation, ~~wherein the radiation has an electric field orthogonal to said at least two groove layers,~~ and

wherein the radiation has a wavelength in a range of about 250 nm to less than ~~about a microwave wavelength~~ 30 microns.

2. (Cancelled)

3. (Currently Amended) The radiation polarizer of claim 1, further comprising at least one protective layer formed atop said at least one substrate, said at least one anti-reflective coating, ~~said nanostructures, and said groove layers~~ and said layer of nanostructures.

4. (Currently Amended) The radiation polarizer of claim 1, further comprising at least one protective layer formed beneath said at least one substrate, said at least one anti-reflective coating, ~~said nanostructures, and said groove layers~~ and said layer of nanostructures.

5. (Cancelled)

6. (Cancelled)

7. (Currently Amended) The radiation polarizer of claim 1, wherein ~~at least one of said groove layers comprises~~ each of said nanostructures of said layer of nanostructures includes a dielectric having a lower conductivity than ~~the respective one of~~ said metallic of said nanostructures.

8. (Cancelled)

9. (Cancelled)

10. (Currently Amended) The radiation polarizer of claim ~~9~~ 1, wherein the dielectric is partially composed of a non-air dielectric.

11. (Currently Amended) The radiation polarizer of claim 1, wherein each of the nanostructures comprises at least one selected from the group consisting of a ~~plurality of wires,~~ a plurality of gratings, a plurality of pillars, and a plurality of rising shapes.

12. (Currently Amended) The radiation polarizer of claim 11, wherein each of ~~the plurality of~~ said nanostructures may be substantially parallel to each other of ~~the plurality of~~ said nanostructures.

13. (Original) The radiation polarizer of claim 1, further comprising at least one etch stop layer that separates at least one of said at least two nanostructures from said substrate.

14. (Currently Amended) The radiation polarizer of claim 1, wherein a first of said nanostructures is separated from a second of said nanostructures by at least one selected from the group consisting of ~~at least one spacer layer, at least one buffer layer, and at least one etch stop layer~~ air, vacuum and dielectric material.

15. (Currently Amended) The radiation polarizer of claim 1, wherein each metallic of each nanostructure ~~of at least one of said nanostructures~~ comprises a height in a range of about 50 nm to about 250 nm.

16. (Currently Amended) The radiation polarizer of claim 1, wherein each metallic of each nanostructure ~~of at least one said nanostructures~~ comprises a width of about 30 nm.

17. (Original) The radiation polarizer of claim 1, wherein said nanostructures comprise a transmissivity of greater than about 97%, and an extinction ratio of greater than about 40dB.

18. (Original) The radiation polarizer of claim 1, wherein said nanostructures comprise 180° of effective polarization separation in a space of less than about 0.2 mm.

19. (Original) The radiation polarizer of claim 1, wherein said nanostructures comprise an acceptance angle of up to about +/- 20°.

20. (Currently Amended) The radiation polarizer of claim 1, wherein each nanostructure of ~~each of said nanostructures~~ said layer of nanostructures comprises at least one selected from the group consisting of a rectangle, a trapezoid, a semicircle, an oval, a convex hull, a stepped set, and a pillar.

21. (Original) The radiation polarizer of claim 1, further comprising a multilayer anti-reflective coating communicatively coupled to at least one of said at least two nanostructures.

22. (Currently Amended) A method for providing at least one of radiation polarizer and beam control, comprising:

communicatively coupling at least one anti-reflection coating layer to a substrate;

communicatively coupling at least two nanostructures to at least one of the at least one anti-reflection coating layer thereby forming a nanostructure layer, said at least two nanostructures each including a metallic and dielectric combination, said metallic and dielectric of said combination being located adjacent each other, said metallic having a short surface and a long surface, said dielectric extending only partially along said long surface of said metallic;

~~providing interstitially to a respective one of the at least two nanostructures at least two groove layers;~~

~~providing, substantially between said substrate and said at least two groove layers, a plurality of dielectrics said plurality of dielectrics having a refractive index greater than one;~~

coupling the at least two ~~groove layers and the at least two nanostructures~~ nanostructures of said nanostructure layer to provide a pass wavelength in the range of about 250 nm to 30 microns; and

allowing for an examining of radiation having a wavelength in a range of about 250 nm to less than about a microwave wavelength, ~~and having an electric field~~

~~orthogonal to the at least two groove layers~~, by allowing for a passing of the radiation through said ~~coupling of the at least two groove layers and the at least two nanostructures~~ nanostructure layer and by allowing for a reflecting of the radiation from said coupling of ~~the at least two groove layers and at least two nanostructures~~ said nanostructure layer.

23. (Currently Amended) The method of claim 22, further comprising providing at least one protective layer atop the at least one anti-reflective coating, ~~the nanostructures, and the groove layers~~ and the nanostructure layer.

24. (Currently Amended) The method of claim 22, further comprising providing at least one protective layer beneath the at least one anti-reflective coating, ~~the nanostructures, and the groove layers~~ and the nanostructure layer.

25. (Cancelled)

26. (Cancelled)

27. (Currently Amended) The method of claim 22, further comprising orienting each of the nanostructures substantially parallel to each other of the nanostructures.

28. (Original) The method of claim 22, further comprising separating at least one of the at least two nanostructures from the substrate by at least one etch stop layer.

29. (Currently Amended) The method of claim 22, further comprising separating a first of the nanostructures from a second of said nanostructures by at least one selected from the group consisting of at least one spacer ~~layer, at least one buffer layer, and at least one etch stop layer~~ air, vacuum, and a dielectric material.

30. (Currently Amended) The method of claim 22, further comprising composing said metallic of each nanostructure of the layer of nanostructures to a height in a range of about 50 nm to about 250 nm.

31. (Currently Amended) The method of claim 22, further comprising composing said metallic of each nanostructure of the layer of nanostructures to a width in a range of about 30 nm.

32. (Original) The method of claim 22, further comprising composing the nanostructures to an acceptance angle of up to about +/- 20°.

33. (Currently Amended) A radiation controller, comprising:

means for communicatively coupling at least one anti-reflection coating layer to a substrate;

means for communicatively coupling at least two nanostructures to at least one of the at least one anti-reflection coating layer thereby forming a nanostructure layer, wherein at least one of the at least two nanostructures is comprised of ~~a plurality of nanostructures~~ a combination of a metallic element and a dielectric element, each ~~nanostructure of the plurality~~ metallic element having a height in a range of about 50 nm to about 250 nm, and a

width in a range of about 30 nm, wherein said metallic and dielectric of said combination being located adjacent each other, said metallic having a short surface and a long surface, said dielectric extending only partially along said long surface of said metallic;

~~means for providing interstitially to a respective one of the at least two nanostructures at least two groove layers;~~

means ~~for coupling the at least two groove layers and the at least two nanostructures~~ to provide a pass wavelength in the range of about 250 nm to less than about a microwave wavelength;

means for providing substantially between said substrate and said ~~at least two groove layers~~ nanostructure layer a plurality of dielectrics, said plurality of dielectrics having a refractive index greater than one; and,

means for allowing for examination of radiation having a wavelength in a range of about 250 nm to 30 microns~~, and having an electric field orthogonal to the at least two groove layers~~.

34. (Cancelled)

35. (Cancelled)

36. (Original) The controller of claim 33, further comprising means for orienting each of the nanostructures parallel to each other of the nanostructures.

37. (Original) The controller of claim 33, further comprising means for separating at least one of the at least two nanostructures from the substrate by at least one etch stop layer.

38. (Currently Amended) The controller of claim 33, further comprising means for separating a first of the nanostructures from a second of said nanostructures by at least one selected from the group consisting of ~~at least one spacer layer, at least one buffer layer, and at least one etch stop layer~~ air, vacuum and a dielectric material.

39. (Currently Amended) A monolithic optical device, comprising:

optical radiation;

an optical radiation processor, comprising:

a substrate;

at least one anti-reflection coating layer communicatively coupled to said substrate;

at least two nanostructures communicatively coupled to said at least one anti-reflection coating layer forming a nanostructure layer, wherein at least one of said at least two nanostructures comprises a ~~plurality of nanostructures~~ combination of a metallic and a dielectric, each metallic having a width in the range of about 30 nm, wherein said metallic and dielectric being located adjacent each other, said metallic having a short surface and a long surface, said dielectric extending only partially along said long surface of said metallic; and

~~at least two groove layers, wherein each one of said at least two groove layers is interstitial to a respective one of said at least two nanostructures; and,~~

~~a plurality of dielectrics substantially between said substrate and said at least two groove layers, said plurality of dielectrics having a refractive index greater than one,~~

wherein ~~a communicative coupling between each one of said groove layers and the respective one of said nanostructures~~ said nanostructure layer polarizes the radiation, wherein the radiation has a wavelength in a range of about 250 nm to 30 microns.